

in “legacy” industries like fashion, media, and advertising.⁸⁵⁰ This has been described as a natural evolution for the city because the startup culture “plays to New York’s strengths in part because the city has always been a hub for creating content, designing new things, and marketing products and services.”⁸⁵¹ Similar factors have also been pivotal in supporting the development of fledgling startup communities in cities like Boulder, Colorado, and Portland, Oregon.⁸⁵²

Although the reasons why these and other cities proved to be fertile ground for a startup community vary widely, they do share a common trait: none resulted from a GON.⁸⁵³ More broadly, none resulted from a government plan to create a high-tech sector from scratch. Many evolved organically, and while most have benefited greatly from favorable municipal policies aimed at fostering continued growth, success never hinged on the availability of a government-owned broadband network.⁸⁵⁴ Such top-down planning is in many ways anathema to the startup ethos that permeates these communities. In fact, the opposite approach tended to work best—having government respond to the needs of entrepreneurs as they arise. This dynamic is evident in how public funding and other resources in many startup cities have been used to support the creation of incubators, mentoring programs for entrepreneurs, shared office space facilities, tax breaks to encourage investment, and affordable housing programs.⁸⁵⁵

In sum, those cities that have successfully nurtured vibrant information sectors, high-tech clusters or startup communities have used public resources to create or enhance the conditions necessary to foster the type of environment that is conducive to these industries. Building a GON has never figured into this calculus.

5.9 Finding Nine: GONs are not optimal remedies for perceived or actual broadband connectivity challenges.

GONs proponents often argue municipal networks will inject competition into the local broadband market. Because existing broadband offerings are, in their view, inadequate, residents and businesses will immediately benefit from the introduction of a competing municipal network.⁸⁵⁶ This normative perspective stems from an overly pessimistic view of U.S. broadband and an overly optimistic one about municipalities’ ability to correct markets. The rationale offered is that “networks owned by local governments, nonprofit organizations, or cooperatives are structurally responsive to the community first and should own this essential infrastructure.”⁸⁵⁷ This line of thinking is questionable in a number of ways.

850 *New Tech City* at p. 16, 17.

851 *Id.* at p. 16.

852 See, e.g., Dane Stangler, *Path-Dependent Startup Hubs*, Kauffman Foundation (Sept. 2013), available at <http://www.kauffman.org/uploadedFiles/DownloadableResources/path-dependent-startup-hubs-comparing-metropolitan-performance-high-tech-and-ict-startup-density.pdf> (discussing the rise of these and other startup hubs throughout the U.S. and evaluating the factors that influenced their rise) (“*Path-Dependent Startup Hubs*”).

853 Numerous surveys have sought to rank cities and regions based on metrics like startup density or using an array of factors like the number of patents filed per capita. In most instances, these surveys have yielded rankings that included cities and regions that have not built GONs, suggesting that these projects do little to improve the chances that a startup community or high-tech cluster will be spawned. For examples, see *id.* at p. 3 (ranking the top 20 large metropolitan areas by startup density, none of which is home to a GON); Richard Florida, *America’s Leading High Tech Metros*, June 28, 2012, *The Atlantic Cities*, available at <http://www.theatlanticcities.com/technology/2012/06/americas-leading-high-tech-metros/2244/> (ranking the top 20 U.S. metro areas using a technology index that incorporates the concentration of high-tech companies, patents per capita and average annual patent growth. Of these, only one city with a GON—Burlington, VT—makes the list. The author, however, credits the proximity of the University of Vermont as the leading factor for its inclusion.).

854 For a concise yet comprehensive examination of the various public and private sector inputs that are essential to growing these sectors in cities around the world, see generally *A Cambrian Moment*, Special Report on Tech Startups, Jan. 18, 2014, *The Economist*, available at <http://www.economist.com/news/special-report/21593580-cheap-and-ubiquitous-building-blocks-digital-products-and-services-have-caused>

855 See, e.g., *id.*; *Path-Dependent Startup Hubs* at p. 12-18 (discussing these and other efforts that have been undertaken by startup cities in recent years); *New Tech City* (recommending that New York City undertake similar initiatives in order to bolster its fledgling startup community).

856 See *supra*, section 2, for additional discussion.

857 *Averting the Looming Broadband Monopoly* at p. 7.

First and foremost, the premise of this particular argument hinges on a very basic understanding of competition, one that is largely inapplicable to the modern context. Specifically, the argument dismisses direct, data-based measures of consumer welfare and competition in favor of more rudimentary measures—e.g., the number of firms in a particular sector and their market shares—which tend to be imperfect indicators that are vulnerable to manipulation.⁸⁵⁸ As a result, this perspective can leave out high levels of innovative dynamism throughout the entire broadband sector.⁸⁵⁹

Second, this rationale positions local officials as the judges of whether broadband markets are effectively competitive. The FCC has been tasked by Congress to monitor the national marketplace and undertake certain policy responses based on its analyses;⁸⁶⁰ local governments are often ill-equipped to make such judgments.⁸⁶¹ Moreover, even the FCC has had issues with properly measuring and assessing broadband competition and otherwise harnessing the many new metrics for purposes that are emerging in this space.⁸⁶² Ultimately, such determinations are best made by observing consumers, who, by and large, are seeing their demands met as a result of intense competitive pressures throughout every segment of the marketplace.⁸⁶³

Finally, viewing GONs as a means of promoting competition in a local market means the proposed solution—the construction of a municipal network—risks tilting the playing field against service providers in the private sector. Introducing a “competitor” with a perceived (or actual) competitive advantage because of its affiliation with government could chill or drive away investment, slow innovation, and undermine the very market forces that have fostered a vibrantly competitive environment in this space.⁸⁶⁴ For example, in building the infrastructure underlying their GON, some municipal utilities (e.g., EPB in Chattanooga) had the advantage of immediate (and, in some cases, free) access to key inputs like rights-of-way.⁸⁶⁵ For private firms, gaining access to these infrastructural inputs is often a complicated and timely procedure fraught with red tape and bureaucratic inefficiency.⁸⁶⁶

The argument that GONs can or should be used to bolster competition in local and national broadband markets continues to be controversial and represents a policy prescription to a problem that objective data indicate does not exist.

858 See, e.g., Thomas W. Hazlett, *The Federal Communications Commission's Excellent Mobile Competition Adventure*, George Mason University Mercatus Center Working Paper No. 11-46 (Nov. 2011), available at http://mercatus.org/sites/default/files/publication/FCC_Hazlett.pdf (discussing this in the mobile broadband context).

859 See *supra*, section 3.1, for additional discussion and analysis.

860 In the wireless space, for example, the Communications Act calls on the FCC to “review competitive market conditions with respect to commercial mobile services and shall include in its annual report an analysis of those conditions.” 47 U.S.C. § 332(c)(1)(C). In the context of wireline broadband, the Act requires the Commission to determine “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.” 47 U.S.C. § 1301 et seq.

861 See, e.g., *supra*, section 5.5 (providing examples).

862 See, e.g., Larry Downes, *How the FCC Sees Broadband's 95% Success as 100% Failure*, Aug. 23, 2012, *Forbes.com*, available at <http://www.forbes.com/sites/larrydownes/2012/08/23/how-the-fcc-sees-broadbands-95-success-as-100-failure/> (observing that a broad array of data support more optimistic conclusions about the U.S. broadband space than have been made in recent years by the FCC).

863 See *supra*, section 3.1.1, for additional discussion and analysis.

864 *Id.*

865 See, e.g., Avrahmi Berkowitz, *If You Build It, They Will Come: Chattanooga's Broadband Leaders Speak*, July 23, 2013, *Commercial Observer*, available at <http://commercialobserver.com/2013/07/if-you-build-it-they-will-come-chattanooga-broadband-leaders-speak/> (quoting an EPB executive as saying “Since EPB already had an electric power distribution system in place, we already had the poles, the rights-of-way, the underground infrastructure...”).

866 See *infra*, section 6.2, for additional discussion and examples of how these obstacles might be reduced or eliminated in an effort to encourage more robust deployment of broadband infrastructure.

5.10 Finding Ten: State-level policy makers have important roles to play in the GONs context.

Advocacy of municipal broadband networks continues as supporters increasingly frame these projects as vital to the “national interest.”⁸⁶⁷ One impact of these efforts has been a subversion of the state-local relationship in GONs advocacy. By attempting to frame GONs as essential inputs to long-term economic prosperity in the United States, proponents have often sought to marginalize the role of state-level officials, particularly state legislatures, in these discussions.⁸⁶⁸ As a result, efforts by state legislatures to mediate the exploration of these high-risk and costly municipal projects, typically via legislation to govern the process by which these networks are approved and built, are often dismissed out of hand as intrusive encroachments of municipal authority.⁸⁶⁹ Though this perspective attempts to position cities and metropolitan areas as primary drivers of economic development and innovation,⁸⁷⁰ these particular arguments, variously framed around notions of local self-reliance and “cooperative localism,”⁸⁷¹ are unpersuasive with respect to GONs.

State-level policy makers and policy making bodies, especially legislatures, have important roles to play.⁸⁷² GONs are expensive undertakings, costing anywhere from a few million dollars, as in Groton, to several hundreds of millions of dollars, as in Chattanooga, to nearly half a billion dollars in UTOPIA.⁸⁷³ In some cases when a network faltered (e.g., Monticello) local government stepped in with funding support to help steady the municipal system. Other failed and failing systems (e.g., Burlington) negatively impacted local credit ratings, which increase borrowing costs and strain local finances even more. As these systems become more complex and ambitious, the costs associated with building and maintaining them rise inexorably, which raises the risk of costly—and potentially devastating—default by local government. Accordingly, states, which maintain ultimate responsibility for the financial health of the cities and towns in their borders, have a clear and compelling interest in overseeing the process by which GONs proposals are vetted and approved.

Well-established legal precedent supports such a close relationship between municipalities and their states. In 1907, the U.S. Supreme Court succinctly summarized this relationship when it ruled that municipalities are “political subdivisions of the state, created as convenient agencies for exercising such of the governmental powers of the state as may be intrusted [sic] to them ... The number, nature, and duration of the powers conferred upon these corporations and the territory over which they shall be exercised rests in the absolute discretion of the state.”⁸⁷⁴ Over the last century, the contours of these relationships have sharpened in some instances by the adoption of “home rule” statutes and other rules that, among other things, provide municipalities with a degree of autonomy to act on certain matters.⁸⁷⁵ However, only a small number of states—including Alaska, Iowa, Massachusetts, Montana, New Jersey, New Mexico, Ohio, Oregon, South Carolina

867 These issues were discussed in detail in previous sections. See *supra*, section 2 (discussing the evolution of pro-GONs advocacy), section 3.2 (identifying many competing priorities for municipal focus and resources), and sections 2 & 4.1 (analyzing an array of failed and failing GONs).

868 See, e.g., *National Broadband Plan* at p. 153 (calling on Congress to preempt state-level attempts to mediate GONs).

869 See, e.g., Olivier Sylvain, *Broadband Localism*, 73 Ohio St. L. J. 796 (2012) (describing state GONs laws as “getting in the way” and articulating a legal and public policy strategy for bolstering local authority to enter the broadband market as service providers) (“*Broadband Localism*”).

870 See, e.g., BRUCE KATZ AND JENNIFER BRADLEY, *THE METROPOLITAN REVOLUTION: HOW CITIES AND METROS ARE FIXING OUR BROKEN POLITICS AND FRAGILE ECONOMY* (Brookings Press: Washington, DC 2013) (arguing that “Cities and metropolitan areas are the engines of economic prosperity and social transformation in the United States.” *Id.* at p. 1).

871 See Nestor M. Davidson, *Cooperative Localism: Federal-Local Collaboration in an Era of State Sovereignty*, 93 Va. L. J. 959 (2007) (defining cooperative localism as “direct relations between the federal government and local governments” and arguing that such relationships are playing increasingly “significant role[s] in areas of contemporary policy as disparate as homeland security, law enforcement, disaster response, economic development, social services, immigration, and environmental protection, among other areas of vital national concern.” *Id.* at p. 959 (emphasis added)). For more on the self-reliance rationale, see, e.g., *supra*, section 2; *Evaluating the Rationales for Government-Owned Broadband Networks* at p. 16.

872 As set forth in section 3, *supra*.

873 See *supra*, section 4.1, for additional data and discussion regarding the cost of certain GONs.

874 *Hunter v. City of Pittsburgh*, 207 U.S. 161, 178 (1907).

875 For an historical overview of how these statutes evolved in the first half of the 20th century, see Kenneth E. Vanlandingham, *Municipal Home Rule in the United States*, 10 Wm. & Mary L. Rev. 269 (1968). For a more recent discussion, see National League of Cities, Local Government Authority, <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-powers/local-government-authority>.

and Utah—have “home rule” statutes, which means that in the vast majority of states in the U.S.—about 39 in all—legislatures continue to exert considerable oversight authority over municipalities and many of their functions.⁸⁷⁶ And even in “home rule” states, municipal action is still subjected to close judicial scrutiny.⁸⁷⁷

In the GONs context, state legislatures have broad authority to adopt legislation impacting whether and how a municipality can or cannot offer communications services.⁸⁷⁸ The U.S. Supreme Court confirmed this power in 2004 when it upheld a Missouri law that prohibited municipalities from offering telecommunications services.⁸⁷⁹ In its ruling, the Court found that relevant sections of the Communications Act precluding certain actions that impeded market entry were inapplicable to a state’s subdivisions (i.e., its municipalities), noting that Congress likely did not intend for the statute to support federal preemption in this particular context.⁸⁸⁰

To date, 19 states have adopted laws impacting the ability of municipalities to deploy a GON. Appendix II provides a summary of these statutes. Only a few states (e.g., Nebraska and Texas) imposed outright bans. In most other instances, state legislatures created a road map for municipalities to follow when evaluating a GONs proposal. Many of these involve public participation of some sort—public hearings, referenda, or other activities meant to fully apprise citizens of their local government’s intention to invest public resources in a GON. Numerous others require substantial economic and financial analyses to ensure that a particular municipal project does not become a burden on local residents and the state.

Some have decried these laws as unnecessary barriers that serve only to raise the costs of a municipal network and otherwise “stifl[e]” local government experimentation with these types of systems.⁸⁸¹ Others argue that these laws are ultimately inapplicable in the GONs context.⁸⁸² Nevertheless, these laws remain in force and represent duly considered interventions by state-level policy makers interested in protecting citizens from waste, fraud, and abuse of public funds. Moreover, like the thousands of other laws passed each year by state legislatures, these particular laws reflect the exertion of legal authority by the legislative bodies responsible for monitoring the subdivisions they have created.

The legislative response to GONs by the Florida legislature provides a compelling case study of how a state might go about calibrating public policy responses in this context.

Florida’s Legislative Approach to GONs

In the early 2000s, several municipal broadband projects were planned and deployed throughout Florida; many ultimately failed. In 2003, for example, the city of Quincy issued \$3.3 million in revenue bonds to build a fiber-optic network known as NetQuincy.⁸⁸³ Despite much enthusiasm and optimism about its potential to help the city “tak[e] charge of its [own] future,”⁸⁸⁴ the network quickly faltered as expenses far outpaced revenues.⁸⁸⁵ Similarly, the city of Orlando in the mid-2000s deployed a Wi-Fi network in parts of the city that failed due to lack of interest by consumers (despite being built to support 200 users, the system was only used by an

876 See National League of Cities, Local Government Authority, <http://www.nlc.org/build-skills-and-networks/resources/cities-101/city-powers/local-government-authority>.

877 *Id.*

878 47 U.S.C. § 253.

879 *Nixon v. Mo. Mun. League*, 541 U.S. 125 (2004).

880 *Id.* at 138.

881 *Death of the Revolution* at p. 111.

882 See, e.g., *id.* at p. 111-112 (discussing whether state statutes prohibiting the provision of “telecommunications services” apply in the GONs context); *Broadband Localism* at p. 812-837 (analyzing the *Nixon* case and evaluating alternative methods and legal justifications for deploying additional GONs).

883 See *City of Quincy, Florida, Utility System Improvement and Refunding Revenue Bonds, Series 2003*, p. 45, Electronic Municipal Market Access, Municipal Securities Rulemaking Board (Oct 1, 2003), available at <http://emma.msrb.org/MS216479-MS191787-MD372435.pdf>.

884 See *The Case for Municipal Broadband in Florida*, at p. 2, Florida Municipal Electric Association (2005), available at http://www.baller.com/pdfs/fmea_white_paper.pdf (“*Case for Municipal Broadband*”).

885 See, e.g., Richard Swier, *Failing Government-Owned Networks Examined*, Dec. 3, 2013, Watchdog Wire, available at <http://watchdogwire.com/florida/2012/12/03/florida-failing-government-owned-networks-examined/>.

average of 27 people per day).⁸⁸⁶ The network was eventually shut down.⁸⁸⁷ Several other initiatives, including a municipal fiber network in Lake County⁸⁸⁸ and a small-scale Wi-Fi system in Tallahassee,⁸⁸⁹ were viewed as moderately more successful, but they were also significantly less ambitious in size and scope than some of the other GONs that had been built, and they did not compete with private ISPs for residential customers.

These various projects were likely fresh in the minds of legislators who, in 2005, began to develop a legislative framework to guide these and future efforts. The result was a law that set forth a straightforward process for municipalities contemplating a GON. This process includes:

- **Ample notice of public hearings.** Municipalities are required to hold no less than two public hearings, which must be held more than 30 days apart. The municipality is required to provide notice of the hearings 30 days prior to the state's public service commission, and prominently publicize the date in a newspaper of general circulation. The municipality must also provide notice to all broadband service providers in the geographic region.⁸⁹⁰
- **Discussion of numerous aspects of the proposed GON at the hearings.** During the hearing, the municipality must consider whether similar services are already being provided in the area, or if service providers have proposed to offer similar services.⁸⁹¹ The hearing must also address the projected costs for constructing, operating, and maintaining the system, as well as realistic estimates of revenues and expenses.⁸⁹² The statute also says that the hearing should weigh the costs and benefits of opting for a municipal solution over a private one.⁸⁹³
- **Develop a business plan.** The municipality must also draft and make available to the public a business plan that details: (1) the projected number of subscribers; (2) the geographic area served; (3) the kinds of service offered; (4) a plan to ensure that the proposed network's revenues will exceed operating expenses and debt payments within four years; (5) the estimated capital and operational costs for the first four years; and (6) future network upgrade costs.⁸⁹⁴
- **Financing.** The statute also prohibits cities from cross-subsidizing their networks.⁸⁹⁵ If the municipality intends to finance the project using bonds with a maturity period longer than 15 years, the government must hold a public vote.⁸⁹⁶ And if the network is not covering operational and borrowing costs after four years, the municipality must hold a public hearing to consider whether to shutter the network, sell it, partner with a private entity, or continue operating the network.⁸⁹⁷

To date, this framework, coupled with a generally deregulatory approach to advanced communications services, contributed to enormous growth and innovation throughout the state's broadband ecosystem. In particular, the broadband market throughout Florida is vibrantly competitive and continues to be fueled by the interrelated forces of sustained levels of investment in network infrastructure by private ISPs and insatiable consumer demand for new services. To these ends, the state quickly emerged as a leader in broadband adoption among the southern states in the late 2000s.⁸⁹⁸ Similarly, in the years following passage of the GONs legislation

886 *Golden Gate Lark*.

887 *See supra*, section 2.

888 This system provides broadband access to businesses and municipal institutions, not residents. One study from 2005 concluded that the system had significant positive economic impacts on the municipality. *See* George S. Ford & Thomas M. Koutsky, *Broadband and Economic Development: A Municipal Case Study from Florida*, RURDS Vol. 17, No. 3 (Nov. 2005). Some criticized this particular study as being not sufficiently thorough to account for a range of other factors that might have influenced perceived economic gains stemming from the network. *See, e.g.*, Press Release, *Heartland Statement on Municipal Broadband Studies*, April 26, 2005, available at <http://heartland.org/press-releases/2005/04/26/heartland-statement-municipal-broadband-studies>.

889 This system provides Wi-Fi access in the downtown area and in the local airport. Data from 2009 (the latest available) indicate that an average of 10 people accessed the downtown network on any given day. *See* Digital Canopy, *Wi-Fi Statistics*, <http://wifiservices.hcs.net/>.

890 Fl. Stat. § 350.81(2)(a).

891 Fl. Stat. § 350.81(b)(2)&(3).

892 Fl. Stat. § 350.81(2)(b)(4).

893 Fl. Stat. § 350.81(2)(b)(5).

894 Fl. Stat. § 350.81(2)(c).

895 Fl. Stat. § 350.81(2)(f).

896 Fl. Stat. § 350.81(2)(c)(2).

897 Fl. Stat. § 350.81(2)(l)(1)-(4).

898 *See Report on the Status of Competition in the Telecommunications Industry For 2010*, at p. 42, Florida Public Service Commission (Dec. 2010), available at <http://www.psc.state.fl.us/publications/pdf/telecomm/20110729MasterComp.pdf>.

and implementation of other forward-looking policies, increases in broadband adoption outpaced the national average.⁸⁹⁹ As of the end of 2012, 74 percent of Florida households had a fixed broadband connection, with millions more accessing the Internet wirelessly.⁹⁰⁰ With respect to supply side issues, 99.5 percent of the population had access to a wireline broadband connection by the end of 2012, while 96 percent had access to at least two.⁹⁰¹ Nearly everyone in the state—98.3 percent of the population—had access to at least three wireless broadband providers.⁹⁰²

In sum, this type of legislative approach to GONs has played a key role in encouraging the state's broadband marketplace. Equally important, the legislature augmented these policies with an array of other legislative reforms that focused primarily on advancing broadband and modernizing communications regulation.⁹⁰³ These were developed in close coordination with the governor and other relevant stakeholders, reflecting the type of collaborative, holistic approach to improving broadband connectivity that has yielded positive results across the country.⁹⁰⁴

This dynamic is evident in numerous states that have focused resources on evaluating local broadband markets, assessing needs, and collaborating with stakeholders to craft the most efficient and effective responses possible. GONs legislation represents only one type of policy response that some states have determined best addresses their particular circumstances. Numerous other state legislatures, however, prioritized reforms aimed at recalibrating regulatory frameworks to better reflect the realities of the modern communications marketplace.⁹⁰⁵ Regardless of the approach, the primary takeaway remains the same: state policy makers, especially legislatures, have important roles to play not only with respect to GONs but also in the larger broadband context.

899 See, e.g., *Report on the Status of Competition in the Telecommunications Industry For 2006*, p. 48-51, Florida Public Service Commissioner (May 2006), available at <http://www.psc.state.fl.us/publications/pdf/telecomm/2006CompReportfinal.pdf>.

900 See *Report on the Status of Competition in the Telecommunications Industry For 2012*, p. 31, Florida Public Service Commission (Dec. 2012), available at <http://www.psc.state.fl.us/publications/pdf/telecomm/20130722MasterComp.pdf>.

901 See National Broadband Map, Summarize: Florida, <http://www.broadbandmap.gov/summarize/state/florida>.

902 *Id.*

903 This included reform legislation in 2005 that, among other things, deregulated VoIP services and exempted broadband services from state-level regulation. See Section 364.01(3), Florida Statutes. Additional reforms were enacted in 2009 and 2011 in an effort to further spur broadband deployment throughout the state by reorienting regulatory policy around advanced communications services. See Chap. 2009-226, Laws of Florida, available at http://laws.flrules.org/files/Ch_2009-226.pdf; Chap. 2011-36, Laws of Florida, available at http://laws.flrules.org/files/Ch_2011-036.pdf.

904 See *infra*, section 6, for additional discussion and examples of the positive impacts of this type of approach to broadband connectivity.

905 For an overview of these efforts and analysis of their impacts on the broadband market, see, e.g., *Telecommunications Deregulation: Updating the Scorecard for 2013; Recalibrating Regulatory Federalism*.

Part III

A Way Forward

6

Roles for Local and State Governments in Enhancing Broadband Connectivity

With high-speed Internet connectivity transforming every aspect of modern life, many compelling motivations exist for public action in the broadband space. Attempting to harness this transformative technology for economic and social gain is a rational response by stewards of the public good, who increasingly understand that broadband connectivity is a vital ingredient to short-term economic revival and long-term prosperity.⁹⁰⁶ Policy makers at every level of government have critical roles to play in encouraging broadband connectivity.

This section discusses the roles state and local officials can play in spurring greater broadband connectivity on both the supply and demand sides. As an overview:

- **Section 6.1** offers a general framework for policy makers when developing and implementing strategies to enhance broadband connectivity in their communities. This framework attempts to capture the best practices and lessons learned from programs that have been deployed in cities and states across the country. The section suggests 10 guiding principles to frame supply side endeavors and 10 principles to frame demand side endeavors.
- **Section 6.2** examines an array of successful and unsuccessful approaches on the supply side. The discussion compares PPPs that are “more public than private” (**section 6.2.1**), PPPs that are “balanced” (**section 6.2.2**), and PPPs that are “more private than public” (**section 6.2.3**).
- **Section 6.3** examines a number of approaches on the demand side, including “collaborative” PPPs (**section 6.3.1**) and ineffective “top-down” PPPs (**section 6.3.2**).

A key takeaway is that policy makers have meaningful opportunities to work collaboratively with local stakeholders to:

- Determine the actual state of play in the broadband space; and
- Tailor solutions that reflect and leverage the range of expertise and resources available.

6.1 A Framework for Bolstering Broadband Connectivity at the State and Local Levels

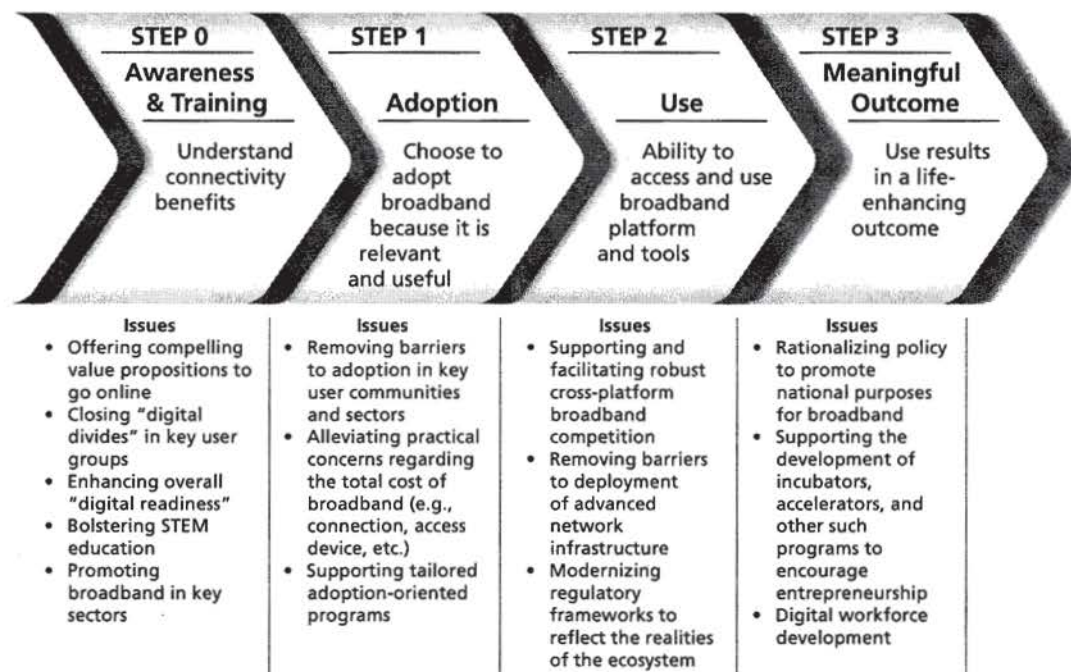
State and local governments are well-positioned to help spur broadband connectivity in a number of ways. Substantial research indicates that the most effective approaches stem from:

- Thinking broadly about broadband connectivity; and
- Appreciating that connectivity encompasses a wide range of activities impacting consumer and service provider decisions on both the supply side and demand side.

⁹⁰⁶ The clearest recent expression of these myriad public perceptions of the value of broadband to society generally can be found in the *National Broadband Plan*. However, these sentiments extend back to at least the mid-1990s, when the Clinton Administration implemented a number of policy reforms aimed squarely at unlocking the true economic and transformative power of the Internet. See, e.g., JONATHAN E. NUCHTERLEIN AND PHILIP J. WEISER, *DIGITAL CROSSROADS: TELECOMMUNICATIONS LAW AND POLICY IN THE INTERNET AGE* (2nd ED.) 177-178 (MIT Press: Cambridge, MA 2013). Subsequent presidents, Congressional officials, FCC members, and other policy makers have also embraced the ability of Internet connectivity to change lives and sectors. See *Supra*, section 2.

Figure 6.1 provides a schematic of the broadband connectivity paradigm and highlights key issues implicated in each step of the process by which individuals and businesses choose to go online and the manner in which they use broadband.

Figure 6.1: Broadband Connectivity Paradigm



The approach to improving broadband connectivity highlighted throughout this paper seeks to reflect the diverse toolkit available to local and state officials and their many core competencies. The approach also encourages the use of resources in a manner reflecting communities' unique needs while respecting the still-tenuous nature of public finances.

Public-private partnerships can effectively address any aspect of the broadband connectivity paradigm depicted in Figure 6.1. Such partnerships are critical because they seek to "apply the resources of the private sector in meeting the needs of the public."⁹⁰⁷ These partnerships have been used in an array of contexts over the last few decades, including efforts to enhance public transportation and infrastructure, education, and public safety.⁹⁰⁸ More recently, they have become a popular means of "break[ing] the log jam" in an effort to achieve public sector goals during a period of shifting budget priorities.⁹⁰⁹ The use of PPPs recognizes that working to improve the supply of broadband is not an all-or-nothing proposition that pits the public sector

907 See *For the Good of the People: Using Public-Private Partnerships to Meet America's Essential Needs*, at 4, National Council for Public-Private Partnerships (2002), available at <http://www.ncppp.org/presskit/ncpppwhitepaper.pdf>.

908 See, e.g., Mark Perlman and Julia Pulidindi, *Public-Private Partnerships for Transportation Projects*, Municipal Action Guide, National League of Cities (May 2012), available at <http://www.nlc.org/File%20Library/Find%20City%20Solutions/Research%20Innovation/Infrastructure/public-private-partnerships-for-transportation-projects-mag-may12.pdf> ("Public-Private Partnerships for Transportation Projects").

909 See Emilia Istrate and Robert Puentes, *Moving Forward on Public Private Partnerships: U.S. and International Experience with PPP Units*, at p. 1, Brookings-Rockefeller Project on State and Metropolitan Innovation (Dec. 2011), available at http://www.brookings.edu/~media/research/files/papers/2011/12/08%20transportation%20istrate%20puentes/1208_transportation_istrate_puentes.pdf ("Moving Forward on Public Private Partnerships").

against the private sector.⁹¹⁰ Rather, there is a broad range of possibilities for engagement between stakeholders throughout this space.

Structurally, PPPs vary widely, but many are forged to spread a project's risks. The amount of risk assumed by the public and by private parties differs depending on a number of variables, the most significant of which is the amount of capital invested. As an incentive for private firms to enter into PPPs and contribute resources at a high level, public entities typically reward private investment with a more tangible ownership stake and control over how the project will be realized.⁹¹¹ These interests are calibrated via contracts that delineate the scope of rights and duties for public and private partners.⁹¹² In the broadband context, there are numerous ways to structure PPPs to address issues on both the supply side and demand side. Properly implemented, these partnerships prove to be especially effective in achieving core public policy goals, including spurring new network build-out to previously unserved areas and promoting more robust broadband use in under-adopting communities, two core goals of broadband public policy.

The following principles are offered to policy makers and other stakeholders as a checklist of sorts for navigating the many options available on both the supply and demand sides.

Framework for Developing Viable Approaches to Improving Broadband Connectivity

- The most effective approaches are narrowly tailored to address specific problems evident in the locality.
- Policy makers should embrace a broad conception of broadband connectivity, one that does not position GONs as a primary or exclusive means of government action.
- Whenever possible, PPPs should be used to address supply side and demand side issues.
- Policy makers should recognize the broad range of opportunities available beyond PPPs for collaborating with relevant stakeholders.
- Every action in this context should revolve around a desire to maximize opportunities for harnessing the transformative power of broadband.

When addressing supply side issues to bolster broadband development:

1. **Have a clear vision.** Developing a clear vision and mission for new technologies in a municipality is essential to crafting focused, rational roles for local government. Cities that put forward a clear vision for broadband and technology generally have more success forging PPPs with expert firms and otherwise developing realistic strategies that efficiently marshal resources and stakeholders around common goals.
2. **Err on the side of comprehensiveness.** Comprehensive approaches that support forming diverse coalitions to work toward shared broadband goals across key sectors and communities tend to succeed.
3. **Use data to better target policy responses and calibrate partnerships.** Gathering data is an essential exercise that helps better inform policies and provides stakeholders with a clearer picture of the state of broadband connectivity in a given community. Data-centric policy making has proven an expedient means of identifying areas of unmet demand (e.g., rezoned former industrial areas).

910 A general distrust of the private sector is evident in much GONs advocacy. See, e.g., *supra*, section 2.1 (discussing the ideological origins of GONs advocacy); Eric Null, *Municipal Broadband: History's Guide*, 9 ISJLP 21, 53-55 (2013) (arguing that, since a "corporation is accountable to its shareholders," it has incentives to undermine a PPP and thus should be approached with wariness by public sector officials or, in some cases, dismissed outright in favor of a purely public solution, i.e., a GON); *Broadband at the Speed of Light* (generally pitting the interests and resources of "huge corporations" against those of municipalities in an attempt to justify GONs); David Carr, *Telecom's Big Players Hold Back the Future*, May 19, 2013, N.Y. Times (summarizing criticism of the U.S. broadband market that reflects this type of distrust).

911 See, e.g., Fred Becker and Valerie Patterson, *Public-Private Partnerships: Balancing Financial Returns, Risks, and Roles of the Partners*, Public Performance & Management Review, 29 (2) (Dec., 2005) (identifying two basic parameters that should be included in any PPP: "First, a strong, positive association should exist between risks and rewards for the private partner: Higher risk assumed by the private partner deserves the promise of higher rewards, and vice versa. Second, a strong, positive association is necessary between risk and the degree of involvement of the private partner in development, operations, and ownership. A higher degree of managerial involvement by the private partner is warranted in exchange for assuming higher risk in the activity, and vice versa." *Id.* at p. 126).

912 *Public-Private Partnerships for Transportation Projects* at p. 2 (providing examples of three types of basic PPP contracts used in the transportation context).

4. **Be strategic in the use of RFIs and RFPs.** Well-written, concise, and narrowly tailored RFIs and RFPs are useful tools for municipalities to assess the scope of potential PPPs with stakeholders in the private and nonprofit sectors.
5. **Position government as a key funding conduit.** Local and state governments are important funding conduits for channeling limited public resources to private sector firms willing to work in a PPP to achieve well-defined broadband goals.
6. **Tap into government's convening power.** Local and state governments have important convening roles. They are uniquely positioned to bring stakeholders together to identify areas of need and apportion resources accordingly.
7. **Leverage municipal authority to unlock broadband deployment.** Municipalities possess enormous authority to drive broadband build-out. City officials should embrace the task of modernizing legal and policy frameworks to encourage further investment in next-generation broadband networks. Possible activities include rethinking the franchising process, streamlining the administration of local rights-of-way, increasing the speed with which permits and siting requests are reviewed and approved, and modernizing zoning policies to better reflect the contours of the marketplace and the technological aspects of modern communications networks.⁹¹³
8. **Leverage state authority to unlock broadband deployment.** Examples of successful actions undertaken in dozens of states include comprehensive regulatory modernization efforts, minimalist regulatory frameworks for advanced communications technologies (e.g., broadband, VoIP, wireless), and the allocation of limited pools of funding to seed PPPs. Together, these types of efforts are essential to unlocking additional investment in next-generation networks.⁹¹⁴
9. **Maintain a level playing field.** Ensuring parity is essential to fostering continued competition in the broadband ecosystem. Conversely, tipping the playing field by granting a firm a distinct set of incentives undermines this notion. As such, it is essential that policy reforms, concessions, and incentives impacting supply side decisions be made available to all competitors.
10. **Purely public approaches rarely succeed.** The absence of expert private firms from supply side efforts deprives municipalities of innovative, cost-conscious thinking and other critical core competencies that local and state governments typically lack.

When addressing demand side issues to increase broadband adoption:

1. **Appreciate the hyper-local nature of broadband connectivity challenges.** While there are many commonalities across under-adopting groups, barriers to connectivity tend to differ in nuanced ways from state to state, from city to city, and often from neighborhood to neighborhood. Demand side responses should be calibrated accordingly.
2. **Study the relevant community to gather key data and insights.** Components of effective demand stimulation and aggregation strategies include measuring and understanding local demand, identifying and appreciating the many contours associated with barriers to broadband connectivity, and identifying existing resources and assets (e.g., elements of local social infrastructures) that can serve as the core of resulting PPPs.
3. **Effective demand side programs tend to be local in nature.** Whenever possible, outreach and training efforts should be devolved to the local level to ensure more targeted programming. National outreach campaigns can be useful in raising general awareness of the benefits of broadband connectivity, but programs that deliver hands-on training typically thrive at the hyper-local level. Local policy makers are

913 The fallout from recent natural disasters—e.g., network outages—has highlighted a fundamental dissonance between zoning laws and modern communications network requirements. For additional discussion, see Charles M. Davidson & Michael J. Santorelli, *Communications Network Outages—Learning from Hurricane Sandy*, ACLP Briefing, New York Law School (Dec. 2012), available at <http://www.nyls.edu/advanced-communications-law-and-policy-institute/wp-content/uploads/sites/169/2013/08/ACLP-Briefing-Network-Outages-December-2012.pdf>.

914 By one estimate, updating and removing requirements for ISPs to maintain legacy telecommunications networks (i.e., those that support basic telephone service over the Public Switched Telephone Network) could unlock tens of billions of dollars in additional broadband investment annually. See Anna-Maria Kovacs, *Telecommunications Competition: The Infrastructure-Investment Race*, Internet Innovation Alliance (Oct. 2013), available at http://internetinnovation.org/images/misc_content/study-telecommunications-competition-09072013.pdf.

especially well-positioned to work with private firms, nonprofit groups, and other stakeholders to spearhead these kinds of approaches.

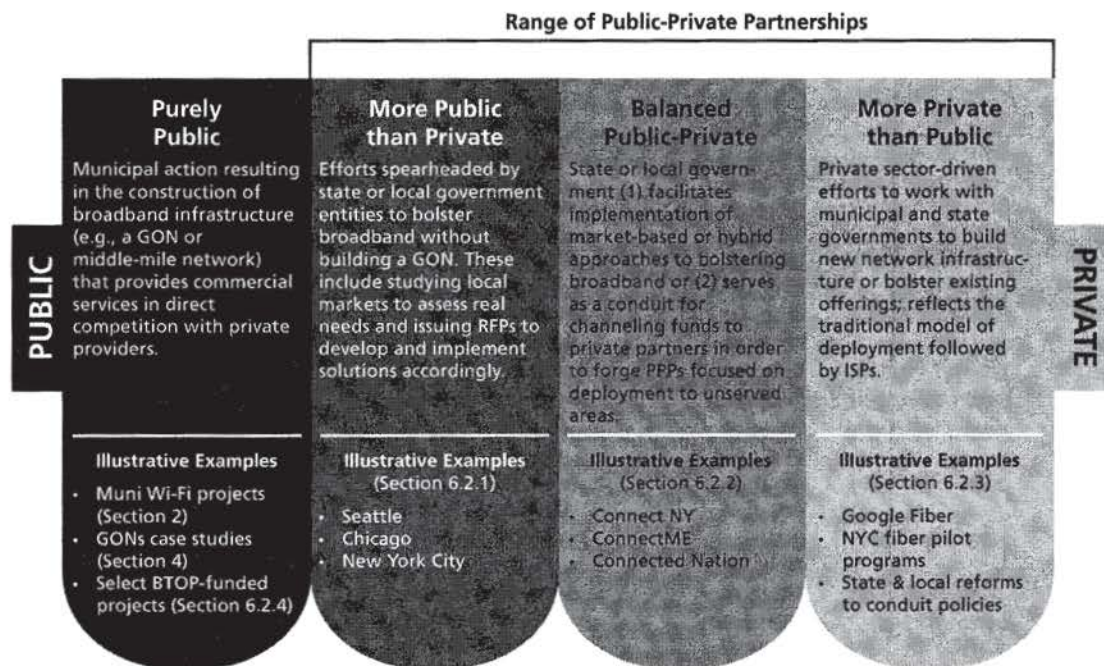
4. **Leverage local social infrastructures.** These networks of expert programs and institutions are key inputs to any demand side PPP. As such, it is essential to understand the characteristics of these local networks, including the capacities and limitations of component organizations. Developing this knowledge base is critical to effective programmatic responses.
5. **Leverage core competencies of policy makers and government institutions at the state and local levels.** Doing so will yield relationships with a broader group of stakeholders, which in turn enhances the ability to not only engage in wide-ranging awareness activities on behalf of a particular PPP (e.g., convening public forums to aid in studying local demand dynamics), but also, in many instances, assist in identifying funding mechanisms for a partnership.
6. **Pair narrowly tailored demand side programs with build-out efforts to unserved areas.** Stimulating and aggregating demand for broadband is a critical aspect of reducing the risk inherent in deploying new networks to “uneconomic” unserved areas.⁹¹⁵
7. **Local and state governments are well-positioned to help coordinate demand side programs.** Core functions include serving as conduits for channeling funding and other resources to PPPs or as central hubs for facilitating partnerships among members of relevant social infrastructures (e.g., identifying opportunities for collaboration between two nonprofits; assisting interested private firms and philanthropic organizations in identifying nonprofits they can support financially).
8. **Comprehensive planning is essential.** Much like on the supply side, municipalities benefit from comprehensive strategies for addressing broadband connectivity issues. Cities that have undertaken such analyses, and worked with and through local social infrastructures to channel resources and support expert nonprofits, have seen significant progress toward closing gaps in adoption and informed use.
9. **Consider tying demand side initiatives to social service delivery.** Doing so could yield clearer, more compelling value propositions and, eventually, more meaningful uses of the technology. Equally important, PPPs that assist in social service delivery can help municipalities streamline certain administrative functions and otherwise realize a number of cost savings.
10. **Top-down approaches to demand side issues rarely work.** Often these approaches necessitate the integration of existing adoption programs to enhance efficacy. As such, it would be much more efficient and effective to work with these organizations from the start.

6.2 Supply Side PPPs to Bolster Broadband Development: Illustrative Examples

Figure 6.2 delineates the range of ways to structure supply side public-private partnerships. Subsequent subsections provide examples of each approach. The common thread is that, to succeed, each requires roughly equal participation of public and private partnerships. Those that fail tend to follow the less successful, top-down GONs approach to broadband connectivity.

915 See, e.g., *Broadband and the Empire State* (discussing this approach in the context of bringing new broadband networks to unserved parts of New York State). See also *Beyond the Divide: Progress Report*, at p. 11-20, Connected Nation (Fall 2013), available at http://www.connectednation.org/sites/default/files/connected-nation/files/cnctd_fall_final.pdf (detailing a similarly holistic approach to working at the community level to stimulate awareness of and demand for broadband and tailoring supply side and demand side responses accordingly).

Figure 6.2: Broadband Deployment Continuum



6.2.1 PPPs that are “More Public than Private”

PPPs that are “more public than private” describe initiatives typically spearheaded by state or local government to bolster broadband without building a GON. These include, for example, launching inquiries to study local markets and assess needs and issuing requests for information or proposals (RFIs or RFPs) to develop and implement solutions accordingly. The scope of these activities varies widely and encompasses activities like gathering data about broadband availability to better inform policy responses and developing formal plans of action that culminate in PPPs. The following examples from Seattle, Chicago, and New York provide further insight into how these types of PPPs might be structured and the various outcomes they can facilitate.

Seattle’s Broadband Efforts

In the early 2000s, Seattle, like many other cities in the U.S., explored options for building a municipal network.⁹¹⁶ By 2005, Seattle succeeded in deploying what was eventually described as a “meager” Wi-Fi network in select parts of downtown and in public parks.⁹¹⁷ Also that year, the city released the results of a city-led analysis of “how the city [could] promote deployment of an advanced communications network.”⁹¹⁸ This report identified an overarching goal for the city—“Within a decade, all of Seattle will have affordable access to an interactive, open, broadband network”—and put forward a number of recommendations for realizing this vision.⁹¹⁹ In response, city officials explored the feasibility of a more robust and widespread municipal wireline network.⁹²⁰

916 Many of these efforts were described *supra*, in section 2.

917 See, e.g., Brier Dudley, *Seattle Pulls Plug on its Broadband Network*, May 6, 2012, Seattle Times, available at http://seattletimes.nwsources.com/html/business/technology/20120506_seattle_pulls_plug.html (“Seattle Pulls Plug”).

918 See *Report of the Task Force on Telecommunications Innovation*, City of Seattle (May 2005), available at <http://www.seattle.gov/cable/docs/SeaBTF.pdf>.

919 *Id.* at p. 6-7.

920 See, e.g., Matthew Halverson, *Disbanded: No Broadband Utility for Seattle*, June 20, 2012, Seattle Met, available at <http://www.seattlemet.com/arts-and-entertainment/articles/disbanded-no-broadband-utility-for-seattle-july-2012/> (describing myriad inquiries made by the city).

By early 2012, however, local policy makers ended both municipal initiatives—the existing Wi-Fi network and fledgling plans for a GON—citing cost concerns.⁹²¹ Nevertheless, officials remained focused on encouraging broadband throughout the city and explored a number of avenues for leveraging existing municipal assets for these purposes. Soon after the Wi-Fi network was decommissioned, the city announced it would seek to lease part of its internal fiber network to the highest bidder.⁹²² In December 2012, the city announced an agreement with a firm to “develop and operate an ultra-high-speed fiber-to-the-home/fiber-to-the-business broadband network.”⁹²³ This deal hinged on a promise by the partner firm—a startup called Gigabit Squared—to lease the city’s fiber assets and invest tens of millions of dollars in bringing fiber to the home.⁹²⁴ Despite much fanfare, by the end of 2013 this partnership had unraveled.⁹²⁵ This was due in large part to what city officials described as an unworkable financial plan implemented by Gigabit Squared.⁹²⁶ Among other things, this resulted in unpaid bills and little progress toward actually building out the proposed network.⁹²⁷

Assessment. Even after determining a GON was not in the best interests of the city, local officials continued down a path that reflected, in many ways, the municipal broadband mindset. That the hybrid approach to bolster broadband connectivity in the city eventually failed is not surprising because it closely mirrored many of the GONs models discussed in section 4.

Chicago’s Broadband Efforts

Since the early 2000s, Chicago has been attempting to develop and implement a diversified strategy for leveraging municipal assets to increase broadband connectivity throughout the city. Initial efforts centered on studying the feasibility of deploying a citywide Wi-Fi network.⁹²⁸ By the late 2000s, however, Chicago elected to forego a municipal wireless system because of cost concerns and the general failure of the municipal Wi-Fi model.⁹²⁹ Thereafter, city efforts focused primarily on studying and understanding the contours of the many demand side issues facing Chicago, especially those related to its digital divide.⁹³⁰ A renewed focus on supply side issues only emerged after several years of working to boost awareness of and demand for broadband in under-adopting communities.⁹³¹

In 2012, the city launched the “Chicago Broadband Challenge,” a program aimed at conducting a holistic assessment of local broadband infrastructure, partnering with private-sector stakeholders to assist the city

921 *Seattle Pulls Plug*.

922 *Id.*

923 See Press Release, *City of Seattle, University of Washington, and Gigabit Squared Announce Plan to Develop Ultra-fast Broadband Network*, Dec. 13, 2012, City of Seattle, available at <http://mayormcginn.seattle.gov/city-of-seattle-university-of-washington-and-gigabit-squared-announce-plan-to-develop-ultra-fast-broadband-network/>.

924 *Id.*

925 See Todd Bishop, *Gigabit Squared’s Legacy in Seattle: Unpaid Bill of \$52,250*, Jan. 3, 2014, Geekwire.com, available at <http://www.geekwire.com/2014/gigabit-squareds-legacy-seattle-unpaid-bill-52250/>.

926 See Emily Parkhurst, *Seattle’s Fiber-Network with Gigabit Squared is Dead*, Jan. 7, 2014, Puget Sound Business Journal, available at <http://www.bizjournals.com/seattle/blog/techflash/2014/01/seattles-fiber-deal-with-gigabit.html?page=all>.

927 *Id.*

928 See, e.g., Esme Vos, *Chicago Resurrects Muni Wi-Fi Plan, Issues RFI*, Sept. 27, 2012, Muni Wireless, available at <http://www.muniwireless.com/2012/09/27/chicago-resurrects-muni-wifi-plans/> (noting that the city began exploring a citywide wireless system in 2003).

929 See, e.g., Eric Bangeman, *Chicago’s Decision to Drop Muni Wi-Fi Symptomatic of a Troubled Sector*, Aug. 29, 2007, Ars Technica, available at <http://arstechnica.com/uncategorized/2007/08/chicagos-decision-to-drop-muni-wifi-symptomatic-of-a-troubled-sector/>.

930 See, e.g., *The City that Networks: Transforming Society and Economy Through Digital Excellence*, Report of the Mayor’s Advisory Council on Closing the Digital Divide (May 2007), available at http://www.cityofchicago.org/dam/city/depts/doit/supp_info/DEI/CityThatNetworks.pdf (putting forward a number of recommendations for bolstering broadband connectivity across the city); Karen Mossberger and Caroline J. Tolbert, *Digital Excellence in Chicago: A Citywide View of Technology Use*, Report to the Chicago Department of Innovation and Technology (July 2009), available at http://www.cityofchicago.org/dam/city/depts/doit/supp_info/DEI/Digital_Excellence_Study_2009.pdf (evaluating technology use in the city and identifying barriers to more robust broadband adoption). For additional discussion, see *infra*, section 6.3.1.

931 In 2009, for example, Chicago receive a sizeable grant from the U.S. Department of Commerce to launch a nonprofit—the SmartChicago Sustainable Broadband Adoption program—focused on “spur[ring] economic development in five disadvantaged neighborhoods in Chicago” via “a comprehensive broadband awareness and adoption program that will include providing computers and training opportunities to more than 11,000 residents and 500 small businesses and not-for-profits.” See BroadbandUSA, Grantees: City of Chicago, <http://www2.ntia.doc.gov/grantees/CityOfChicago>.

in “making the investments required to ensure that Chicago is prepared to meet the demands of the modern economy and position Chicago as one of the most connected cities in the world.”⁹³² To meet these goals, the city in September 2012 issued an RFI to “gather ideas and recommendations for developing and expanding citywide broadband infrastructure and improve access to high-speed internet for residents across the City.”⁹³³ The city has said it will not attempt to build a GON; instead, it will look to achieve its goals for broadband and its fledgling high-tech sector in close collaboration with private firms.⁹³⁴ Two dozen organizations, including numerous private firms, responded to the RFI.⁹³⁵ In addition, the city forged a partnership with Gigabit Squared to deploy FTTH in select parts of the city.⁹³⁶ Recent troubles in Seattle have cast doubt on the ability of this organization to deliver on its promises.⁹³⁷ Indeed, in early 2014 the state of Illinois asked Gigabit Squared to return \$2 million in grant money because of alleged improprieties by the group.⁹³⁸

Assessment. Chicago’s many successes on the demand side have not been matched on the supply side. This is due in large part to an inability or unwillingness to engage experts in the private sector regarding their needs vis-à-vis investing more in their networks and working with stakeholders (e.g., via PPPs) to ensure more widespread access.

New York City’s Public-Private Approaches on the Supply Side

New York City spearheaded a number of public-private initiatives focused on strengthening broadband infrastructure. In 2005, for example, the city enacted legislation calling for the formation of a broadband advisory committee to “review how to use municipal resources to accelerate the build-out of current, emerging, and newly developed broadband technologies and other advanced telecommunications and information services.”⁹³⁹ Over the next few years, the committee convened public forums to solicit feedback regarding the real needs of residents and businesses throughout the city. These and related efforts informed a number of subsequent policy responses. For instance, the city worked closely with a number of private firms to deploy Wi-Fi networks in dozens of public spaces across the city.⁹⁴⁰ The result has been the near blanketing of parks, industrial zones, and tourist areas with privately provided wireless Internet access.

Assessment. Already one of the most robust markets for broadband in the country, New York City has further bolstered availability by successfully forging a diverse array of PPPs.

6.2.2 Balanced Public-Private Partnerships

The balanced approach to structuring PPPs positions state or local government as an intermediary working with partners to realize discrete goals for broadband. In practice, this typically results in a government

932 See City of Chicago, *The Broadband Challenge*, <http://digital.cityofchicago.org/index.php/the-broadband-challenge/>.

933 See *Request for Information: Broadband Infrastructure Expansion*, Dept. of Procurement Services, City of Chicago (Sept. 2012), available at <http://www.cityofchicago.org/content/dam/city/depts/dps/ContractAdministration/Specs/2012/Spec111304.pdf>.

934 See, e.g., Brian Santo, *Muni Broadband with a Twist*, Nov. 1, 2012, CED Magazine, available at <http://www.cedmagazine.com/blogs/2012/11/muni-broadband-with-a-twist>.

935 See City of Chicago, *The Broadband Challenge: RFI Respondents*, <http://digital.cityofchicago.org/wp-content/uploads/2012/09/RFI-Respondents-Contact-List-FINAL.pdf>.

936 See Kevin Fitchard, *Gigabit Squared Promises Fiber Broadband for Chicago’s South Side*, Oct. 16, 2012, GigaOm, available at <http://gigaom.com/2012/10/16/gigabit-squared-plans-fiber-broadband-for-chicagos-south-side/>.

937 See, e.g., Stacey Higginbotham, *Gigabit Squared Co-Founder and Former President Resigns Amid Questions over Seattle Deal*, Jan. 8, 2014, GigaOm, available at <http://gigaom.com/2014/01/08/gigabit-squared-co-founder-and-former-president-resigns-amid-questions-over-seattle-deal/>.

938 See Sandra Guy, *State Wants Gigabit Squared to Return \$2 million Grant*, March 27, 2014, Chicago Sun-Times, available at <http://www.suntimes.com/business/26484032-420/state-wants-gigabit-squared-to-return-2-million-grant.html#.U2fC6Ve5I6I> (quoting a state official as saying Gigabit Squared had “lied repeatedly” about its intentions and may have spent only \$250,000 of the grant money for legitimate purposes).

939 See Local Law 126-2005, New York City Council (enacted), available at <http://legistar.council.nyc.gov/LegislationDetail.aspx?ID=444034&GUID=F0EA8014-69F5-4F7B-AB88-EEF2F394E5BE&Options=ID|Text|&Search=126>.

940 See, e.g., NYC Digital, *Digital Road Map: Access*, <http://www.nyc.gov/html/digital/html/roadmap/access.shtml> (describing some of these PPPs).

or quasi-government entity either working to implement market-based approaches to bolstering broadband or serving as a conduit for channeling funds to private partners to forge PPPs focused on unserved areas. The benefits associated with the balanced PPP stem primarily from maximizing the core competencies of state and local government. Both entities have the ability to serve as natural conveners and coordinators of broad activities focused on widely shared goals. In addition, the balanced PPP approach often minimizes financial outlays by public entities and seeks instead to forge partnerships that spread the risks associated with building, maintaining, and operating a complex communications infrastructure.

The following examples—of Maine, New York, and Connected Nation—highlight the permutations of this type of PPP, one that has been successful when carefully designed and implemented.

ConnectME

The ConnectME Authority in Maine was created by legislation in 2006 to “facilitate the universal availability of broadband to all Mainers and help them understand the valuable role it can play in enriching their lives and helping their communities and businesses thrive.”⁹⁴¹ The Authority has a broad portfolio empowering it to undertake a range of initiatives focused on strengthening both the supply of and demand for broadband services throughout the state.⁹⁴²

On the supply side, the Authority possesses significant discretion with regard to awarding grants in support of deployment projects to unserved areas that would not otherwise be attempted in the absence of such funding.⁹⁴³ These grants, most of which constitute only part of a project’s overall cost, are flexible and can be used in support of new network deployments, as matching grants or gap funding, or for “any other necessary activities that are integral and necessary for the development, installation and use of a broadband or mobile communications system.”⁹⁴⁴ Funding for these grants stems from a “0.25 [percent] surcharge on all communications, video and Internet service bills for retail in-state service,” which generates in excess of \$1 million each year.⁹⁴⁵

By the end of 2012, 99 total grants had been made, totaling \$8 million.⁹⁴⁶ The results have been impressive: broadband is available to over 91 percent of households in the state, up from 86 percent when the Authority was first formed.⁹⁴⁷ Equally important, the broadband adoption rate increased from 40 percent to 73 percent at the same time, which suggests there was significant demand for these services in unserved areas.⁹⁴⁸ Future efforts are being guided by a strategic plan released in 2012.⁹⁴⁹ The plan calls for collaboration and cooperation across state and local government, as well as with stakeholders in the private and nonprofit sectors, to bolster broadband connectivity and realize its transformative potential in key sectors like education, healthcare, and government.⁹⁵⁰

Assessment. Maine has struck the right balance between government involvement in the broadband space and private-sector engagement to spur network build-out. This balance hinges on the use of limited public funding to incentivize private deployment efforts in areas that would otherwise be “uneconomic.”

941 See ConnectME Authority, About, <http://www.maine.gov/connectme/about/index.shtml>.

942 For an overview of its various duties, see *id.*

943 See ConnectME Authority *Final Adopted Rule*, Section 6(B), <http://www.maine.gov/sos/cec/rules/90/99/639/639c101.doc>.

944 *Id.* at Section 6(C).

945 See *Annual Report on the Activities of the ConnectME Authority*, at p. 8, Report to the Maine State Legislature Joint Standing Committee on Energy, Utilities, and Technology (Jan. 2013) available at <http://www.maine.gov/connectme/about/docs/ConnectME-AnnRpt2012.pdf>.

946 *Id.* at p. 2.

947 *Id.* at p. 1.

948 *Id.*

949 See *Developing Broadband in Maine: Strategic Plan*, ConnectME Authority (April 2012), available at <http://www.maine.gov/connectme/grants/ntia/docs/ConnectMESTrategicPlanFinalDraft.pdf>.

950 *Id.* at p. 2-3.

Connect NY (Contributed by David Salway, Director, New York State Broadband Program Office⁹⁵¹)

Since being established in 2008, the New York State Broadband Program Office has served as the single point of contact for New York State broadband development and deployment efforts. The Program Office performs a variety of functions to advance Governor Andrew Cuomo's broadband initiatives for the state, with its primary mission being to increase economic and social opportunities through universal broadband deployment. To meet this goal, the Office has worked to (1) research and implement innovative solutions to increase broadband connectivity and boost adoption in underserved and unserved, urban and rural communities throughout the state; (2) support broadband initiatives for the Governor's 10 Regional Economic Development Councils to advance broadband access and adoption; (3) manage state broadband grant programs including Connect NY and the NYS Universal Broadband Grant program; and (4) position New York to maximize available federal funding.⁹⁵²

These efforts—and broadband policies generally throughout the state—have been informed by the careful aggregation and analysis of numerous data points about broadband connectivity in New York. Baseline data, collected in 2009 and 2010, provided a detailed overview of the state of broadband availability. On the supply side, as a result of continued strong investment by an array of ISPs (wireline and wireless), broadband became available to the vast majority of residents by 2010.⁹⁵³ However, pockets of unserved areas remained. More specifically, 520,000 households throughout the state, the equivalent of about 1,000,000 residents, lacked access to broadband at home.⁹⁵⁴ Many of these households are situated in areas where it is exceedingly difficult and expensive to build out the “last mile” of broadband service. Indeed, for many unserved areas, extreme geographic conditions (e.g., dense forest or mountainous topography, as in the Adirondacks) have precluded even the deployment of cellular network infrastructure.⁹⁵⁵

In an effort to plug these gaps and ensure every resident in the state has equal opportunity to tap into broadband's transformative power, Governor Cuomo in 2012 launched Connect NY, a \$25 million grant program “designed to spur investment by broadband service providers and expand broadband connectivity and economic development in each [of the state's] region[s].”⁹⁵⁶ In particular, the program “funded projects which will acquire and install broadband equipment to expand last-mile services to unserved and underserved areas using existing networks, as well as deploying new infrastructure where applicable.” The 18 broadband projects selected to receive Connect NY broadband grants were required to provide matching funds, bringing total statewide investment in the program to more than \$32 million.⁹⁵⁷

The structure of the grant programs reflects a clear preference for public-private partnerships, with the majority of the grants being “awarded ... to Internet service companies and in partnership with local governments and economic development organizations.”⁹⁵⁸ The virtue of this approach is that state government can use scarce public resources as an incentive for private-sector firms to share the risk in areas long considered

951 The views expressed in this Contribution are those of Mr. Salway only. However, by including the contribution in the main body of the report, the authors wish to demonstrate their support for the Connect NY program, which has emerged as a very successful public-private approach to bringing broadband to unserved parts of New York State.

952 See *The NYS 2013 Annual Broadband Report*, available at http://nysbroadband.ny.gov/assets/documents/Annual_Report_7.12.13_WEB.pdf (“2013 Annual Broadband Report”).

953 See, e.g., *id.*; *Broadband and the Empire State* (discussing investment levels and network availability). For additional information, see New York State, Broadband Mapping Project, <http://www.broadbandmap.ny.gov/> (incorporating deployment data as of Dec. 31, 2012).

954 2013 Annual Broadband Report.

955 See, e.g., Michael Gormley, *Cuomo Plans \$25 Million Boost to Upstate Broadband Access*, March 3, 2012, PostStar.com, available at http://poststar.com/news/local/article_4273422a-6577-11e1-a9ba-001871e3ce6c.html. Other factors, notably onerous review processes by entities like the Adirondack Park agency, have influenced infrastructure deployment in these areas.

956 See New York State Broadband Program Office, *Connect NY Broadband Grant Program 2012*, <http://nysbroadband.ny.gov/ConnectNY2012>.

957 See *Connect NY Broadband Grant Programs Guidelines* at p. 2, NYS Broadband Program Office, available at <http://nysbroadband.ny.gov/assets/documents/connectnygrantguidelines1.pdf>.

958 See Press Release, *Governor Cuomo Announces Applications Open for Connect NY Broadband Grants*, Aug. 27, 2012, Office of the Governor of New York, available at <http://www.governor.ny.gov/press/082272012broadbandgrants>.

“uneconomic.”⁹⁵⁹ This creates a win-win-win situation: the public sector realizes broad economic and public policy imperatives around broadband, the private sector can attract new customers in new areas, and, most important, residents finally gain access to this transformative technology.

Together, the Connect NY projects will bring broadband service to over 153,000 households, 8,000 businesses, and 400 anchor institutions—many without any means to access the Internet—across more than 6,000 square miles of New York State.⁹⁶⁰ In addition to the vast economic benefits derived from broadband access, the projects funded by Connect NY will create 1,400 new jobs.⁹⁶¹ To date, the Cuomo administration awarded more than \$56 million in funding for broadband projects, representing the largest statewide broadband funding commitment in the nation.⁹⁶²

In sum, Connect NY has been enormously successful and stands out as a leading model of an effective and balanced PPP, one where state government helps to create incentives for and align goals of unserved communities and private ISPs to bring much-needed broadband service to every part of the state.

Assessment. New York State’s approach to addressing key supply side issues reflects a clear preference for public-private solutions. Governor Cuomo’s leadership on these issues has been supported by the allocation of a substantial amount of funding to seed PPPs in an effort to support network deployment to unserved areas.

Connected Nation

The public-private model developed by *Connected Nation*, a national nonprofit organization headquartered in Washington, D.C., and dedicated to improving broadband connectivity in unserved and underserved parts of the country, has been adapted for use in over a dozen states.⁹⁶³ As an overview, these programs engage in comprehensive broadband planning on behalf of states. Efforts include gathering and analyzing a range of data regarding broadband availability and adoption, the design and implementation of PPPs and other solutions to address shortcomings on both the supply side and demand side, assisting in the development of statewide broadband maps, and an assortment of other consultative services that help state and local policy makers calibrate policy responses to specific needs and resources.⁹⁶⁴

Assessment. Successful public-private solutions to broadband connectivity issues tend to address the unique needs of the states in which they work. Such tailor-made approaches underscore a simple truth of addressing problems on both the supply and demand sides: one size rarely fits all.

6.2.3 PPPs that are “More Private than Public”

“More private than public” PPPs are spearheaded by private-sector firms seeking to work with municipal or state government in either the construction of new broadband networks or the improvement of existing infrastructure. In many ways, this particular form of PPP reflects the prevailing model of network deployment that has been followed by ISPs for many years: companies that wish to build a broadband system

959 For additional discussion of the value of using PPPs in this way, see generally *Broadband and the Empire State*.

960 See New York State Broadband Program Office, Connect NY Broadband Grant Program 2013, <http://nysbroadband.ny.gov/ConnectNY2013>.

961 *Id.*

962 *Id.*

963 These include: Alaska, Colorado, Iowa, Kentucky, Michigan, Minnesota, Nevada, North Carolina, Ohio, Puerto Rico, South Carolina, Tennessee, Texas, and West Virginia. See Connected Nation, State Programs, <http://www.connectednation.org/programs>.

964 For additional information regarding these and other services, see Connected Nation, Core Services, <http://www.connectednation.org/broadband-core-services>.

in a municipality must work with local officials to either secure a franchise or otherwise negotiate access to the public rights-of-way that will support the physical infrastructure of the network.⁹⁶⁵

In general, these PPPs demonstrate there is significant room for experimentation by both the public sector and private sector vis-à-vis facilitating broadband network deployment. Many of the most successful initiatives have been based on a desire to expand upon, rather than replace, the traditional model of infrastructure build-out. Many municipalities have worked with private ISPs to either modernize or replace entirely existing deployment paradigms, all in an effort to assure ubiquitous high-speed Internet connectivity. As such, this particular type of PPP holds much potential for bringing together public and private entities in the pursuit of shared goals for broadband. Examples—from Kansas City, Kansas, and New York City—are provided below.

Google Fiber in Kansas City

In February 2010, Google announced an “experiment.” Google proposed to “build and test ultra-high-speed broadband networks in a small number of trial locations across the United States.”⁹⁶⁶ The company promised to provide 1 Gbps FTTH connections “at a competitive price to at least 50,000 and potentially up to 500,000 people.”⁹⁶⁷ Previously, during preparation of the *National Broadband Plan*, Google called upon the FCC to “build [such] networks as testbeds” to “help learn how to bring faster and better broadband access to more people.”⁹⁶⁸ Less than a year later, Google thought it was “important to back up [its] policy recommendation with concrete action” and followed up with the introduction of Google Fiber.⁹⁶⁹

Progress toward its goal was rapid. By the end of March 2010, over 1,100 communities across the country expressed interest in being the first pilot city.⁹⁷⁰ In July 2010, Google promised to select a city by the end of the year, but in December it announced it was pushing its decision to early 2011.⁹⁷¹ In March 2011, Google announced it had selected Kansas City, Kansas, as the first city where it would build out its FTTH network.⁹⁷² The company explained that its decision was based in large part on a desire to “find a location where [it] could build efficiently, make an impact on the community and develop relationships with local government and community organizations.”⁹⁷³

Over the course of the next year, Google engaged in numerous activities aimed at facilitating rapid deployment of its fiber network. Immediately following the announcement, Google convened a series of town hall

965 For an overview of this process for wireline broadband networks, see, e.g., *Rationalizing Municipal Broadband* at p. 69, fn. 110 (discussing the local franchising process for cable systems). For an overview of this process for wireless broadband networks, see, e.g., *Petition for Declaratory Ruling To Clarify Provisions of Section 332(C)(7)(B) To Ensure Timely Siting Review and To Preempt Under Section 253 State and Local Ordinances That Classify All Wireless Siting Proposals as Requiring a Variance*, Declaratory Ruling, 24 FCC Rcd 13994 (2009), *recon. denied*, 25 FCC Rcd 11157 (2010), *aff'd sub nom. City of Arlington, Texas v. FCC*, 668 F.3d 229 (5th Cir. 2012), *aff'd*, 133 S.Ct. 1863 (2013) (discussing the wireless tower siting process at the municipal level and implementing a “shot clock” to streamline review and approval processes).

966 See Minnie Ingersoll and James Kelly, *Think Big with a Gig: Our Experimental Fiber Network*, Feb. 10, 2010, Google Blog, available at <http://googleblog.blogspot.com/2010/02/think-big-with-gig-our-experimental.html>.

967 *Id.*

968 See Richard Whitt, *Experimenting with New Ways to Make Broadband Better, Faster, and More Available*, Feb. 10, 2010, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2010/02/experimenting-with-new-ways-to-make.html> (“*Experimenting with New Ways*”). See also *In the Matter of a National Broadband Plan for Our Future*, Comments of Google Inc., GN Docket No. 09-51 (June 8, 2009), available at http://static.googleusercontent.com/external_content/untrusted_dlcp/www.google.com/en/us/googleblogs/pdfs/google_noi060809.pdf.

969 *Experimenting with New Ways*.

970 See James Kelly, *Next Steps for Our Experimental Fiber Network*, March 26, 2010, Google Fiber Blog, available at http://googlefiberblog.blogspot.com/2010/03/next-steps-for-our-experimental-fiber_26.html.

971 See Minnie Ingersoll, *Introducing our Google Fiber for Communities Website*, July 13, 2010, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2010/07/introducing-our-google-fiber-for.html>; Milo Medin, *An Update on Google Fiber*, Dec. 15, 2010, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2010/12/update-on-google-fiber.html>.

972 See Milo Medin, *Ultra High-Speed Broadband is Coming to Kansas City, Kansas*, March 30, 2011, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2011/03/ultra-high-speed-broadband-is-coming-to.html>.

973 *Id.*

meetings in Kansas City to apprise citizens of their intentions and to answer questions.⁹⁷⁴ Construction of the network began shortly thereafter; by April 2012, Google succeeded in stringing about 100 miles of fiber from utility poles in the city.⁹⁷⁵ Also during this time, Google conducted a market study and began to develop its service offerings, which were unveiled in July 2012.⁹⁷⁶ Google began to connect customers to the network in November 2012.⁹⁷⁷

The speed with which Google was able to deploy its network and begin the process of signing up customers was aided by a unique development agreement it negotiated with Kansas City.⁹⁷⁸ Novel terms of this agreement included—

- Free office space and power for its operations.⁹⁷⁹
- Free access to the city's assets and infrastructure, including waiver of fees associated with permitting and inspections processes.⁹⁸⁰
- A range of obligations for the city to streamline deployment of the network, including designation of a single point of contact to "address[] all issues related to the project, provid[e] coordination across City departments and serv[e] as a communications and troubleshooting resource for Google;" promises for "quick, diligent review of all applications for permits;" an "obligation to obtain Google's approval for all public statements or announcements related to the Project;" and numerous other items meant to reduce the bureaucracy typically associated with large municipal projects.⁹⁸¹
- The ability to "build, operate and maintain the FTTH network, based upon demand by City residents, availability of necessary infrastructure, and appropriate cooperation of Kansas City Power & Light," the local electric utility that owns many of the poles that would support the network's fiber-optic lines.⁹⁸²
- The "right to terminate the Agreement for convenience at any time up to two (2) years after actual construction commences on the fiber network."⁹⁸³

This agreement was unique because of how fundamentally it differed from the traditional franchise agreements negotiated between municipalities and incumbent ISPs. Many of these include strict build-out requirements that obligate an ISP to provide service to all or most households in a given area.⁹⁸⁴ In addition, local franchisees are required to pay a fee, usually a certain percentage of revenues, in exchange for access to local rights-of-way.⁹⁸⁵ Numerous other concessions are typically extracted from ISPs during the franchising process, highlighting the enormous power that municipalities typically possess in these negotiations.⁹⁸⁶ The Google Fiber agreement represented a significant departure from established practice and raised concerns among

974 See Matt Dunne, *Answers to Your Town Hall Questions—Part I*, June 10, 2011, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2011/06/answers-to-your-town-hall-questions.html>; Matt Dunne, *Answers to Your Town Hall Questions—Part II*, June 15, 2011, Google Fiber Blog, available at http://googlefiberblog.blogspot.com/2011/06/answers-to-your-town-hall-questions_15.html.

975 See Rachel Hack, *A Construction Update*, April 4, 2012, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2012/04/construction-update.html>.

976 See Kenneth Carter, *The State of Broadband Internet Access in Kansas City*, June 22, 2012, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2012/06/state-of-broadband-internet-access-in.html>; Kevin Lo, *How Do you Want Your Internet? Your Choose*, July 26, 2012, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2012/07/how-do-you-want-your-internet-you-choose.html>.

977 See Alana Karen, *Google Fiber Installations Kick Off Today*, Nov. 13, 2012, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2012/11/google-fiber-installations-kick-off.html>.

978 See *Development Agreement, Final Execution Version*, Sept. 2012, available at <http://www.netcompetition.org/wp-content/uploads/Google-Kansas-Agreement1.pdf>.

979 *Id.* at § 2 (c).

980 *Id.* at § 3.

981 *Id.* at § 5.

982 *Id.* at § 6 (c).

983 *Id.* at § 12 (d).

984 See generally Thomas W. Hazlett, *Cable TV Franchises as Barriers to Video Competition*, 12 Va. J.L. & Tech 2 (2007) (discussing the contours of many local franchise agreements and arguing that they are overly burdensome to many franchisees).

985 *Id.*

986 In New York City, for example, cable franchisees during negotiations with city authorities agreed to invest millions of dollars in support of Wi-Fi deployment throughout the city. See, e.g., Todd Spangler, *NYC Approves Franchises For Time Warner Cable, Cablevision*, Aug. 10, 2011, Multichannel News, available at <http://www.multichannel.com/content/nyc-approves-franchises-time-warner-cable-cablevision>.

competitors that the city, in agreeing to Google's terms, had provided the company with numerous competitive advantages in the local broadband market.⁹⁸⁷

Among the many notable incentives agreed to by Kansas City was the manner in which Google would build its network and sign up customers. As previously noted, the development agreement allowed Google to construct its network in response to consumer demand rather than according to municipal build-out requirements to serve an entire community. In particular, Google developed the concept of "fiberhoods" and called on households in discrete communities across the city to "rally" friends and neighbors in order to demonstrate sufficient demand for the broadband services on offer.⁹⁸⁸ Those neighborhoods with insufficient demand, measured by the number of people who pre-registered for Google Fiber service, would be bypassed. Google rationalized this approach as follows: "Google Fiber works better when communities are connected together ... We'll install only where there's enough interest, and we'll install sooner in fiberhoods where there's more interest."⁹⁸⁹ This approach, while beneficial to Google, raised a number of concerns as to whether all neighborhoods in the city would eventually have equal access to the service.⁹⁹⁰ These concerns persisted well after Google began to connect the first fiberhoods in Kansas City.⁹⁹¹

The relatively quick deployment of Google Fiber demonstrated that many aspects of the traditional model of broadband network deployment are in need of updating. For example, since the details of the Google Fiber development agreement were made public in the fall of 2012, many stakeholders in the broadband space, ranging from ISP executives to FCC officials, have argued that cities participating in these types of "experiments" must ensure regulatory parity among service providers in order to foster sustainable competition.⁹⁹² In other words, instead of agreeing to company-specific special incentives, municipalities should strive for across-the-board parity for providers, expediting permitting and lowering entry barriers. Indeed, the speed with which Google has been able to deploy its fiber network has underscored the need for a comprehensive rethinking of how municipalities manage their rights-of-way, structure franchises, and otherwise facilitate network deployment.⁹⁹³

The need to resolve these issues and engage in comprehensive regulatory modernization efforts at the municipal and state levels gained additional immediacy in 2013 when Google announced it had begun to expand its Fiber footprint, first into cities and towns surrounding Kansas City,⁹⁹⁴ and then into Austin, Texas,⁹⁹⁵ and Provo, Utah.⁹⁹⁶ In early 2014, Google announced it intended to explore deployment opportunities in dozens of other cities across the country, further heightening the need for such comprehensive reevaluations.⁹⁹⁷

987 See, e.g., Shalini Ramachandran, *Web Rivals Want What Google Got*, Oct. 2, 2012, Wall St. Journal (noting that local ISPs Time Warner Cable and AT&T were seeking "parity agreements" from Kansas City in order to "compete on a level playing field").

988 See Kevin Lo, *How to Get Google Fiber*, July 26, 2012, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2012/07/how-to-get-google-fiber.html> ("How to Get Google Fiber").

989 *Id.*

990 See, e.g., Marcus Wohlsen, *Google Fiber Splits Along Kansas City's Digital Divide*, Sept. 7, 2012, Wired, available at <http://www.wired.com/business/2012/09/google-fiber-digital-divide/> (observing that Google's approach to building out its network and enrolling customers could "end up reinforcing the digital divide").

991 See, e.g., Mary Sanchez, *Google Spreads, But Issue of Digital Divide Remains*, March 20, 2013, Kansas City Star, available at <http://www.kansascity.com/2013/03/20/4133131/as-google-spreads-issue-of-digital.html> ("The signups proved difficult in low-income areas, particularly large swaths of Kansas City's east side. It became a public reminder of haves and have-nots in regards to technology.").

992 See, e.g., John Eggerton, *Pai: Rights-of-Way Issues Are Up to Date in Kansas City*, Sept. 5, 2012, Broadcasting & Cable, available at http://www.broadcastingcable.com/article/489147-Pai_Rights_of_Way_Issues_Are_Up_to_Date_in_Kansas_City.php (reporting on comments made by FCC Commissioner Ajit Pai to this effect).

993 See, e.g., Rachele Chong, *Google's Medin Challenges Cities to Lay the Table for Gigabit Cities*, Aug. 1, 2013, Techwire.net, available at <http://techwire.net/googles-medin-challenges-cities-to-lay-the-table-for-gigabit-cities/> (reporting on comments made by Milo Medin of Google Fiber regarding the need for these sorts of updates).

994 See, e.g., Rachel Hack, *Google Fiber is Coming to Olathe, Kansas*, March 19, 2013, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2013/03/google-fiber-is-coming-to-olathe-kansas.html>.

995 See Milo Medin, *Google Fiber's Next Stop: Austin, Texas*, April 9, 2013, Google Fiber Blog, available at http://googlefiberblog.blogspot.com/2013/04/google-fibers-next-stop-austin-texas_9.html.

996 See Kevin Lo, *Google Fiber—On the Silicon Prairie, the Silicon Hills, and now the Silicon Slopes*, April 17, 2013, Google Fiber Blog, available at <http://googlefiberblog.blogspot.com/2013/04/silicon-slopes.html>. See also *supra*, section 4.9, for additional discussion regarding the failed GON in Provo and its sale by the city to Google.

997 See Milo Medin, *Exploring New Cities for Google Fiber*, Feb. 19, 2014, Google Blog, available at <http://googleblog.blogspot.com/2014/02/exploring-new-cities-for-google-fiber.html>.

Assessment. The deployment of Google Fiber has underscored that many aspects of the traditional local broadband franchising, permitting and regulatory models need updating. Kansas City demonstrated admirable flexibility in working with Google, a trait that should be adapted by other cities and applied evenly across the competitive landscape. More specifically, to expedite deployment and investment from all broadband players, municipalities should look for ways to expedite processes and lower entry barriers for all service providers. At the same time, municipalities should be wary of granting favors to specific players, while applying more cumbersome and expensive processes to others. Such inequity will tilt the competitive landscape, create economically damaging incentives to curry local favor, and drive away investment from non-favored players. In short, the Google Fiber model evidences admirable strides by a city to lower entry barriers and expedite deployment, but such arrangements should be made available to all comers on a non-discriminatory basis, and should provide all residents within a municipality with equal access to services.

New York City's Fiber Pilots

Over the last several years, New York City government has worked closely with incumbent ISPs to implement several initiatives aimed at supporting deployment of next-generation broadband infrastructure to households and businesses across the city.

In October 2012, former mayor Michael Bloomberg announced the launch of ConnectNYC, "an innovative City-sponsored competition to encourage growing commercial and industrial businesses in New York City to apply for free fiber cable wiring."⁹⁹⁸ This particular program was structured to leverage existing core competencies and resources of incumbent ISPs to provide businesses with fewer than 100 employees the opportunity to jump-start growth.⁹⁹⁹ Over two years, ConnectNYC hopes to connect over 200 businesses to fiber-optic networks. Funding will come principally from two major cable Internet service providers—Time Warner Cable Business Class and Cablevision—who, together, have pledged a combined \$12 million for these purposes.¹⁰⁰⁰

The goal of this program is twofold. First, it seeks to facilitate broadband deployment to mostly unserved industrial zones, which are increasingly used by high-tech startups.¹⁰⁰¹ Second, and related, the program reflects an attempt by the city to assist ISPs in realizing certain obligations stemming from their franchise agreements.¹⁰⁰² In particular, the city has developed a demand-driven program that will help ISPs in identifying unserved areas where new services are needed. The criteria for "winning" the competition have been developed to ensure that new broadband networks are deployed as efficiently as possible and in a manner that ensures maximum impact of new connectivity opportunities.¹⁰⁰³

In April 2013, the city partnered with another local ISP, Verizon, to facilitate a more robust fiber-optic deployment. More specifically, the city launched a "micro-trenching" pilot to "speed the deployment of fiber optic cabling to businesses and residences across the five boroughs while minimizing construction time,

998 See Press Release, *Mayor Bloomberg Launches Competition to Install Free Fiber Cable Wiring in Growing Businesses Across the Five Boroughs*, Oct. 19, 2012, Office of the Mayor of the City of New York, available at http://www.nyc.gov/portal/site/nycgov/menu-item.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2012b%2Fpr364-12.html&cc=unused1978&rc=1194&ndi=1.

999 *Id.*

1000 *Id.*

1001 See, e.g., *New Tech City*.

1002 See, e.g., Press Release, *NYCEDC Launches Second Round of ConnectNYC to Construct Free Fiber Cable Wiring For Businesses Across New York City*, July 23, 2013, New York City Economic Development Corporation, available at <http://www.nycedc.com/press-release/nycedc-launches-second-round-connectnyc-construct-free-fiber-cable-wiring-businesses>.

1003 See, e.g., *id.* ("Applications for ConnectNYC Fiber Access will be evaluated based on the potential impact of fiber on the applicant's business and feasibility of fiber construction at the building's location."); ConnectNYC Fiber Challenge, FAQ: What are the Criteria for Choosing the List of Finalists?, <http://nycfiberchallenge.challengepost.com/details/faq#criteria> (listing three criteria: (1) "Potential Impact of Fiber on Contestant's Business (weighted at 30%). Includes factors such as the Contestant's business activities and job functions at the Location, the number of employees impacted, and the potential for increased productivity and employment at the Location." (2) "Potential to Improve Broadband Infrastructure in Underserved Areas (weighted at 40%) Includes whether the applicant is in an underserved area with limited or non-existent broadband infrastructure." (3) "Potential for Industry Clustering (weighted at 30%) Includes factors such as proximity to other Contestant Locations and the potential for scale economies in wiring a Contestant's building with fiber, and the potential to catalyze new industry clusters by wiring the business and nearby businesses.").

environmental impact and cost.”¹⁰⁰⁴ To do so, the city permitted the use of micro-trenching, a technique for laying fiber-optic cable that minimizes the cost and labor intensity (e.g., digging up streets) often associated with new network construction.¹⁰⁰⁵ This approach uses “small conduits within the edges of City sidewalks to house fiber optic cabling, which can be used to deliver voice, Internet and cable television service.”¹⁰⁰⁶ In addition, excess capacity—i.e., room for additional cabling—will be made available “for use by other communications industry providers, as well as by City agencies, at no cost for the duration of the pilot [which runs through November 2013].”¹⁰⁰⁷ This type of approach is extremely cost-effective and “allows quick deployment of fiber optics with both minimal disruption to street and roadway traffic and minimal interference with public utility infrastructure.”¹⁰⁰⁸ About a dozen locations were preapproved by the city, mostly reflecting areas where there was sufficient demand for these services.¹⁰⁰⁹

Assessment. Together with the Wi-Fi initiatives described above and several other recent programs related to broadband (e.g., WiredNYC), New York City has developed a diverse and compelling public-private approach to boosting high-speed Internet connectivity.

6.2.4 Less Successful Models

The deployment continuum depicted in Figure 6.2 highlights one type of approach that is largely unsuccessful when it comes to addressing core supply side issues in the broadband space: “purely public” actions. In general, these encompass government action—typically at the local level, but also at the state and federal levels—that results in the construction of broadband infrastructure (e.g., a GON or a middle-mile network) that provides commercial services in direct competition with private firms. As discussed at length in sections 2, 4, and 5, there are many examples of failed public approaches, including many during the era of municipal Wi-Fi and more recently in cities like Provo, Groton, and Burlington. Additional examples are discussed below.

Broadband Stimulus Spending

The American Recovery and Reinvestment Act provided the National Telecommunications and Information Administration (NTIA), housed in the U.S. Department of Commerce, and the Rural Utilities Service (RUS), housed in the Department of Agriculture, with \$7.2 billion to bolster broadband connectivity across the United States.¹⁰¹⁰ The vast majority of these funds were earmarked for a range of supply side efforts, including the funding of new middle-mile and last-mile networks in unserved and underserved parts of the country.¹⁰¹¹ A smaller portion was used to address demand side issues, notably efforts aimed at boosting the national adoption rate and improving digital literacy skills.¹⁰¹²

1004 See Press Release, *New York City Launches Micro-Trenching Pilot to Enable Rapid Deployment of Fiber Optic Cabling Across the Five Boroughs*, April 2, 2013, Office of the Mayor of the City of New York, available at http://www.nyc.gov/portal/site/nycgov/menu-item.c0935b9a57bb4ef3daf2f1c701c789a0/index.jsp?pageID=mayor_press_release&catID=1194&doc_name=http%3A%2F%2Fwww.nyc.gov%2Fhtml%2Fom%2Fhtml%2F2013a%2Fdoitt_04-02-13.html&cc=unused1978&rc=1194&ndi=1 (“*New York City Launches Micro-Trenching Pilot*”).

1005 See NYC Dept. of Information Technology & Telecommunications, *Innovation: Broadband, Micro-Trenching*, http://www.nyc.gov/html/doitt/html/business/micro_trenching.shtml (“*About Micro-Trenching*”).

1006 *New York City Launches Micro-Trenching Pilot*.

1007 *Id.*

1008 *Id.*

1009 *About Micro-Trenching*.

1010 See BroadbandUSA, *About*, <http://www2.ntia.doc.gov/about>.

1011 For an overview of broadband grants made via NTIA, see BroadbandUSA, *All Grants Made*, <http://www2.ntia.doc.gov/all-recipients>. For an overview of broadband grants made via RUS, see ProPublica, *Recovery Tracker: Rural Utilities Service*, http://projects.propublica.org/recovery/gov_entities/12e2.

1012 *Id.*

While many stimulus-funded programs and initiatives have succeeded in enhancing broadband connectivity—funding supported construction or improvement of 110,000 miles of broadband infrastructure¹⁰¹³—some have foundered and a few have failed.¹⁰¹⁴ Certain aspects of the program have been riddled with waste, fraud, and abuse since it was launched. Over the course of the program, nearly \$600 million of the broadband stimulus funds allocated by NTIA have, at some point, been temporarily or permanently halted.¹⁰¹⁵ Much of this waste (e.g., using funding to deploy duplicative middle-mile networks) stemmed from programs administered primarily or exclusively by government or quasi-government entities at the state and local levels. The U.S. Government Accountability Office in 2010 observed that such waste might have significant unintended consequences for the broadband market going forward: “funding projects in low-density areas where there may already be existing providers could potentially discourage further private investment in the area and undermine the viability of both the incumbents’ investment and the broadband stimulus project.”¹⁰¹⁶

The following examples, which stem from the federal broadband stimulus program, illustrate some of the harm that can result from a state or local government entity using public resources to engage in supply side activities in direct competition with private sector service providers.

North Florida Broadband Authority. In 2011, the North Florida Broadband Authority (NFBA), a consortium of 14 communities in North Central Florida, was awarded over \$30 million to build an open access middle-mile broadband network capable of linking a group of rural and underserved communities.¹⁰¹⁷ The NFBA itself is a government entity that was created specifically for the purposes of overseeing the project.¹⁰¹⁸

By mid-2013, the project had become financially unsustainable, with monthly revenues of \$11,000 and monthly expenses estimated at over \$250,000.¹⁰¹⁹ As a result, the network accumulated over \$750,000 in debt.¹⁰²⁰ Previously, in 2011, grant funding was temporarily suspended as a result of NFBA’s waste.¹⁰²¹ Many of the reasons that have been cited for such poor performance by the NFBA echo criticisms typically leveled against public sector entities, including that the NFBA failed to adequately monitor its vendors, resulting in significant cost overruns.¹⁰²² In addition, there has been significant staff turnover and claims of widespread mismanagement.¹⁰²³ Some have also argued that the middle-mile network is duplicative and unnecessary in many areas.¹⁰²⁴ For these and many other reasons, several of the original member cities left the consortium.¹⁰²⁵ In October 2013, operation of the NFBA was turned over to a private entity.¹⁰²⁶

1013 See *The Economic Impact of the American Recovery and Reinvestment Act Five Years Later*, p. 41, Final Report to Congress, Council of Economic Advisors, Executive Office of the President (Feb. 2014), available at http://www.whitehouse.gov/sites/default/files/docs/cea_arra_report.pdf.

1014 For examples of successful stimulus-funded programs on the demand side, see *infra*, section 6.3.1.

1015 See, e.g., Edward Wyatt, *Waste is Seen in Program to Give Internet Access to Rural U.S.*, Feb. 11, 2013, N.Y. Times, available at <http://www.nytimes.com/2013/02/12/technology/waste-is-seen-in-program-to-give-internet-access-to-rural-us.html?pagewanted=all> (“Waste is Seen”).

1016 See *Further Opportunities Exist to Strengthen Oversight of Broadband Stimulus Programs*, at p. 29, GAO-10-823 (Aug. 2010), available at <http://www.gao.gov/new.items/d10823.pdf>.

1017 See BroadbandUSA, Grantees: North Florida Broadband Authority, <http://www2.ntia.doc.gov/grantees/NorthFLA>.

1018 See North Florida Broadband Authority, About, <http://nfba.net/about>.

1019 See, e.g., Stew Lilker, *North Florida Broadband Authority: Stimulus Funded 800 lb. Gorilla Puts Squeeze on Financially Strapped Bradford County Schools*, May 13, 2013, Columbia County Observer, available at http://columbiacountyobserver.com/master_files/Florida_News_2013/13_0516_nfba_stimulus-funded-800-lb-gorilla-puts-squeeze-on-financially-strapped-school-district.html (“North Florida Broadband Authority: Stimulus Funded 800 lb. Gorilla”).

1020 See Samantha Bookman, *Report: Bradford County Withdraws from North Florida Broadband Authority*, April 3, 2013, Fierce Telecom, available at <http://www.fiercetelecom.com/story/report-bradford-county-withdraws-north-florida-broadband-authority/2012-04-03#ixzz2fkT8rbos> (“Report: Bradford County Withdraws from North Florida Broadband Authority”).

1021 See *Letter from Alan Conway, NOAA, to NFBA re Suspension of Grant*, Sept. 21, 2011, available at http://www2.ntia.doc.gov/files/grantees/north_florida_amendment4_suspensionletter.pdf.

1022 *Id.*

1023 See, e.g., Stew Lilker, *North Florida Broadband Authority: Wracked by Gross Mismanagement From the Feds on Down, the NFBA has Become the Poster Child for Non-Disclosure*, Dec. 18, 2012, Columbia County Observer, available at http://columbiacountyobserver.com/master_files/Florida_News_2012/12_1218_nfba_wracked-by-gross-mismanagement-from-the-feds-on-down.html.

1024 See, e.g., Joseph Fuhr, *Op-Ed: Don't Look to Government for Broadband Access*, Dec. 7, 2012, Tallahassee Democrat, available at <http://www.theamericanconsumer.org/2012/12/10/joseph-fuhr-op-ed-dont-look-to-government-for-broadband-access/>.

1025 See, e.g., *Report: Bradford County Withdraws from North Florida Broadband Authority*.

1026 See Karl Burkhardt, *Private company takes over North Florida Broadband Authority to resume project to provide Internet*, Oct. 16, 2013, Lake City Journal, available at <http://lakecityjournal.com/main.asp?SectionID=13&SubSectionID=73&ArticleID=10457>

West Virginia Statewide Broadband Infrastructure Project. The state of West Virginia was awarded over \$126 million in stimulus funds to “bring high-speed Internet access to this vastly underserved region” by “adding about 2,400 miles of fiber” and connecting over 1,000 anchor institutions to the new network.¹⁰²⁷ The project sought to “spur affordable broadband service impacting more than 700,000 households, 110,000 businesses, and 1,500 anchor institutions, by allowing local Internet service providers to connect to the project’s open network.”¹⁰²⁸

There are numerous examples of questionable spending practices that have riddled this project. Perhaps the most notorious is the purchase by West Virginia’s Homeland Security Office of 1,064 Cisco 3945 routers at a cost of \$22,600 each (the total purchase price exceeded \$24 million).¹⁰²⁹ These routers, typically used to enable Internet service in sprawling universities or industrial complexes, were purchased by West Virginia for use in one-room public libraries and small schools, locations where a much less expensive router would have sufficed.¹⁰³⁰ The state also improperly inventoried these purchases, running afoul of federal guidelines for safeguarding federal assets.¹⁰³¹ In addition, many of the institutions that ended up receiving Internet service via this project were never consulted about the type of services they required, an approach that replaced actual demand with a one-size-fits-all, top-down method of meeting the needs of underserved and unserved areas.¹⁰³² An audit conducted by the state in 2013 concluded that the project wasted \$14 million to date.¹⁰³³

EAGLE-Net. The Centennial Board of Cooperative Educational Services, a Colorado state agency, received about \$100 million in stimulus funds in 2009 to build the Educational Access Gateway Learning Environment Network (EAGLE-Net), a “hybrid [network] of more than 1,600 miles of terrestrial fiber and 3,000 miles of microwave wireless broadband expanding services across each of Colorado’s 64 counties.”¹⁰³⁴ An ambitious project from the start, EAGLE-Net has failed to meet many of its goals after having spent tens of millions of dollars on either duplicative and unnecessary infrastructure (e.g., a third fiber-optic line into an 11-student elementary school in Agate) or on drastically changing deployment strategies.¹⁰³⁵ As a result, the project quickly went over budget and, by early 2013, had “reached less than 25 percent of the more than 220 school districts and other educational institutions that are supposed to have access to its high-speed Internet network.”¹⁰³⁶ NTIA suspended the program in December 2012, but lifted the suspension in April 2013 after numerous managerial issues were addressed.¹⁰³⁷ However, the much-maligned program revealed it needed “\$10 million to \$15 million in private financing to finish its network.”¹⁰³⁸ Moreover, a review of the grant program by the Inspector General of the U.S. Department of Commerce determined that, overall, the grant administrators “experienced numerous challenges” in meeting the original goals of the proposed project.¹⁰³⁹

1027 See BroadbandUSA, Program Overview: West Virginia Statewide Broadband Infrastructure Project, http://www.ntia.doc.gov/legacy/broadbandgrants/factsheets/WV_ExecOfcWestVA_FINAL.pdf.

1028 *Id.*

1029 See Editorial: Waste: \$22,600 Routers, May 8 2012, Charleston Gazette, available at <http://www.wvgazette.com/Opinion/Editorials/201205080082>.

1030 *Id.*

1031 See Letter from Inspector General Todd J. Zinser, U.S. Department of Commerce, to Chairman Walden and Chairman Shimkus, U.S. House of Representatives, at p. 4, Jan. 23, 2013, U.S. Dept. of Commerce, available at <http://www.oig.doc.gov/recovery/Documents/OIG-13-012-I.pdf>.

1032 See, e.g., Nate Anderson, *Why a one-room West Virginia Library Runs a \$20,000 Cisco Router*, Feb. 25, 2013, Ars Technica, available at <http://arstechnica.com/tech-policy/2013/02/why-a-one-room-west-virginia-library-runs-a-20000-cisco-router/>.

1033 See David Kerley, *Washington Watchdog: \$14M Wasted on Broadband Effort in W.Va. Alone*, Aug. 28, 2013, The Note Blog, ABC News, available at <http://abcnews.go.com/blogs/politics/2013/08/washington-watchdog-14m-wasted-on-broadband-effort-in-w-va-alone/>.

1034 See BroadbandUSA, Grantees: Centennial Board of Cooperative Educational Services (CBOCES) transferred to Eagle-Net Alliance, <http://www2.ntia.doc.gov/grantee/centennial-board-of-cooperative-educational-services-cboCES-transferred-to-eagle-net-alliance>.

1035 *Waste is Seen*.

1036 See Andy Vuong, *Taxpayer-Backed EAGLE-Net Project May Need More Funds for Broadband Network*, Feb. 27, 2013, Technow Bytes Blog, The Denver Post, available at <http://blogs.denverpost.com/techknowbytes/2013/02/27/ntia-eagle-net-broadband-may-need-more-funds-to-complete-network/8630/>.

1037 See Andy Vuong, *NTIA to Lift EAGLE-Net Suspension, Broadband Project Needs More Money*, April 29, 2013, The Denver Post, available at http://www.denverpost.com/ci_23133964/ntia-lift-eagle-net-suspension-broadband-project-needs.

1038 *Id.*

1039 See Letter from Todd J. Zinser, Inspector General of the U.S. Dept. of Commerce, to Rep. Greg Walden, Chairman of the Subcommittee on Communications & Technology, U.S. House of Representatives, p. 16, Jan. 23, 2014, available at <http://www.oig.doc.gov/OIGPublications/OIG-14-011-M.pdf>.